WHAT IS CLAIMED IS:

1. A digital image data correction method, comprising:

a first step of correcting an optical distortion component in a predetermined direction of optical distortion included in digital image data; and

a second step of correcting an optical distortion component in a crossing direction crossing the predetermined direction of the optical distortion, separately from the correction of the optical distortion component in the predetermined direction.

2. A digital image data correction method according to claim 1, wherein the digital image data which has been corrected in one of the first step and the second step is corrected in the other of the first step and the second step.

3. A digital image data correction method according to claim 1, wherein the digital image data which is uncorrected in the first step and the second step is respectively corrected in the first step and the second step, and the digital image data which has been corrected in the first step is synthesized with the digital image data which has been corrected in the second step, so that the optical distortion is corrected.

4. A digital image data correction method according to claim 1, wherein

in the first step, the digital image data is read along

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the predetermined direction from a storage component in which the digital image data is stored, so that the optical distortion component in the predetermined direction is corrected, and the corrected digital image data is written into the storage component parallel to the predetermined direction of the digital image data in which the optical distortion component in the predetermined direction is uncorrected; and

in the second step, the digital image data is read along the crossing direction from the storage component, so that the optical distortion component in the crossing direction is corrected, and the corrected digital image data is written into the storage component parallel to the crossing direction of the digital image data in which the optical distortion component in the crossing direction is uncorrected.

5. A digital image data correction method according to claim 1, wherein

in the first step, the digital image data is read along the predetermined direction from a storage component in which the digital image data is stored, so that the optical distortion component in the predetermined direction is corrected, and the corrected digital image data is written into the storage component parallel to the crossing direction of the digital image data in which the optical distortion component in the predetermined direction is uncorrected; and

in the second step, the digital image data is read along

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the crossing direction from the storage component, so that the optical distortion component in the crossing direction is corrected, and the corrected digital image data is written into the storage component parallel to the predetermined direction of the digital image data in which the optical distortion component in the crossing direction is uncorrected.

6. A digital image data correction method according to claim 1, wherein an amount of data conversion due to the optical distortion is approximately expressed by a polynomial which depends on a distance from an optical center of the digital image data.

7. A digital image data correction method according to claim 6, wherein the polynomial is a function that does not include a term in which the distance is of an odd order and that includes only a term in which the distance is of an even order.

8. A digital image data correction method according to claim 1, wherein a pixel on a corrected coordinate of the corrected digital image data is interpolated with pixels around an uncorrected coordinate of the uncorrected digital image data corresponding to the corrected coordinate, so that the optical distortion component is corrected.

9. A digital image data correction apparatus for separately correcting an optical distortion component in a predetermined direction of optical distortion included in digital image data and an optical distortion component in a

crossing direction crossing the predetermined direction of the optical distortion.

10. A digital image data correction apparatus according to claim 9, wherein one of the optical distortion component in the predetermined direction and the optical distortion component in the crossing direction is corrected in the digital image data in which the other of the optical distortion component in the predetermined direction and the optical distortion component in the crossing direction has been corrected.

11. A digital image data correction apparatus according to claim 9, wherein the optical distortion component in the predetermined direction and the optical distortion component in the crossing direction are respectively corrected in the digital image data in which the optical distortion component in the predetermined direction and the optical distortion component in the crossing direction are uncorrected, and the digital image data in which the optical distortion component in the predetermined direction has been corrected is synthesized with the digital image data in which the optical distortion component in the crossing direction has been corrected, so that the optical distortion is corrected.

12. A digital image data correction apparatus according to claim 9, wherein

the digital image data correction apparatus is connected

with a storage component which stores the digital image data therein,

when the optical distortion component in the predetermined direction is corrected, the digital image data is read along the predetermined direction from the storage component, so that the optical distortion component in the predetermined direction is corrected, and the corrected digital image data is written into the storage component parallel to the predetermined direction of the digital image data in which the optical distortion component in the predetermined direction is uncorrected, and

when the optical distortion component in the crossing direction is corrected, the digital image data is read along the crossing direction from the storage component, so that the optical distortion component in the crossing direction is corrected, and the corrected digital image data is written into the storage component parallel to the crossing direction of the digital image data in which the optical distortion component in the crossing direction is uncorrected.

13. A digital image data correction apparatus according to claim 9, wherein

the digital image data correction apparatus is connected with a storage component which stores the digital image data therein,

when the optical distortion component in the

predetermined direction is corrected, the digital image data is read along the predetermined direction from the storage component, so that the optical distortion component in the predetermined direction is corrected, and the corrected digital image data is written into the storage component parallel to the crossing direction of the digital image data in which the optical distortion component in the predetermined direction is uncorrected, and

when the optical distortion component in the crossing direction is corrected, the digital image data is read along the crossing direction from the storage component, so that the optical distortion component in the crossing direction is corrected, and the corrected digital image data is written into the storage component parallel to the predetermined direction of the digital image data in which the optical distortion component in the crossing direction is uncorrected.

14. A digital image data correction apparatus according to claim 9, wherein an amount of data conversion due to the optical distortion is approximately expressed by a polynomial which depends on a distance from an optical center of the digital image data.

15. A digital image data correction apparatus according to claim 14, wherein the polynomial is a function that does not include a term in which the distance is of an odd order and that include only a term in which the distance is of an even order.

16. A digital image data correction apparatus according to claim 9, wherein a pixel on a corrected coordinate of the corrected digital image data is interpolated with pixels around an uncorrected coordinate of the uncorrected digital image data corresponding to the corrected coordinate, so that the optical distortion component is corrected.

17. A digital image pickup apparatus comprising:

an optical lens which images an object to be photographed;

a conversion component which photoelectrically converts the imaged object, so as to output digital image data showing the object;

a storage component which stores the digital image data therein; and

a correction component which separately corrects an optical distortion component in a predetermined direction of optical distortion included in the digital image data and an optical distortion component in a crossing direction crossing the predetermined direction of the optical distortion.

18. A digital image pickup apparatus according to claim 17, wherein

when the optical distortion component in the predetermined direction is corrected, the correction component reads the digital image data along the predetermined direction from the storage component, so as to correct the optical distortion component in the predetermined direction, and writes distortion component in the predetermined direction, and writes

the corrected digital image data into the storage component parallel to the predetermined direction of the digital image data in which the optical distortion component in the predetermined direction is uncorrected, and

when the optical distortion component in the crossing direction is corrected, the correction component reads the digital image data along the crossing direction from the storage component, so as to correct the optical distortion component in the crossing direction and writes the corrected digital image data into the storage component parallel to the crossing direction of the digital image data in which the optical distortion component in the crossing direction is uncorrected.

19. A digital image pickup apparatus according to claim 17, wherein

when the optical distortion component in the predetermined direction is corrected, the correction component reads the digital image data along the predetermined direction from the storage component, so as to correct the optical distortion component in the predetermined direction, and writes the corrected digital image data into the storage component parallel to the crossing direction of the digital image data in which the optical distortion component in the predetermined direction is uncorrected, and

when the optical distortion component in the crossing direction is corrected, the correction component reads the

digital image data along the crossing direction from the storage component, so as to correct the optical distortion component in the crossing direction and writes the corrected digital image data into the storage component parallel to the predetermined direction of the digital image data in which the optical distortion component in the crossing direction is uncorrected.

20. A digital image pickup apparatus according to claim 17, wherein the correction component approximately expresses an amount of data conversion due to the optical distortion with a polynomial which depends on a distance from an optical center of the digital image data.

21. A digital image pickup apparatus according to claim 20, wherein the correction component causes the polynomial to be a function that does not include a term in which the distance is of an odd order and that includes only a term in which the distance is of an even order.

22. A digital image pickup apparatus according to claim 17, wherein the correction component interpolates a pixel on a corrected coordinate of the corrected digital image data with pixels around an uncorrected coordinate of the uncorrected digital image data corresponding to the corrected coordinate, so as to correct the optical distortion component.